United States Patent [19]

Cheng et al.

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[54] **STABILIZATION OF INTRACELLULAR ENZYMES**

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[*] Notice: The portion of the term of this patent subsequent to Mar. 4, 2002 has been disclaimed.

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 707,773, Mar. 4, 1985, abandoned.

[51] **Int. Cl.**[5] **C12P 19/24**; C12N 11/08

[52] **U.S. Cl.** **435/94**; 435/180; 435/182; 435/188; 435/234

[58] **Field of Search** 435/94, 180, 182, 188, 435/234

[56] **References Cited**

U.S. PATENT DOCUMENTS

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[57] **ABSTRACT**

The subject invention concerns a process for stabilizing intact or ruptured microbial cells having glucose isomerase associated therewith. Specifically exemplified is a process for stabilizing glucose isomerase producing cells of a microorganism belonging to the genus Ampullariella. In the invention process the whole or ruptured microbial cells are contacted with a partially carboxyalkylated- or partially phosphonoalkylated-cationic polyelectrolyte, for example, a partially carboxymethylated polyethyleneimine to flocculate and stabilize the cells. The flocculated cells are further stabilized by encapsulation with a partially carboxyalkylated- or partially phosphonoalkylated-cationic polyelectrolyte. The encapsulation can be done prior to or after the flocculated cells are crosslinked. The net effect is manifested by a dramatic increase in the half-life of the glucose isomerase.

46 Claims, 1 Drawing Sheet